

Texas Space Grant Consortium (TSGC)
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PROGRAM DESCRIPTION

The National Space Grant College and Fellowship Program consists of 52 state-based, university-led Space Grant Consortia in each of the 50 states plus the District of Columbia and the Commonwealth of Puerto Rico. Annually, each consortium receives funds to develop and implement student fellowships and scholarships programs; interdisciplinary space-related research infrastructure, education, and public service programs; and cooperative initiatives with industry, research laboratories, and state, local, and other governments. Space Grant operates at the intersection of NASA's interest as implemented by alignment with the Mission Directorates and the state's interests. Although it is primarily a higher education program, Space Grant programs encompass the entire length of the education pipeline, including elementary/secondary and informal education. The Texas Space Grant Designated Program was funded at a level of **\$575,000** for fiscal year 2011.

PROGRAM GOALS

The TSGC strategic goals align with NASA's Educational Outcomes. Our goals and programs serve multiple constituencies with emphases on customer focus, NASA-related content, the STEM (Science, Technology, Engineering and Math) pipeline, increased diversity, effective evaluation of programs, the development of partnerships, and program sustainability. NASA's Educational Outcomes and how TSGC's goals support them are summarized below.

NASA Outcome 1

Contribute to the development of the STEM workforce (Employ and Educate)

TSGC Goal A: Increase and Enhance Minority / Underserved Participation in our programs: In our Fellowship/Scholarship, Higher Education and Research infrastructure categories, we had 173 direct participants. 31.7% were female, and 23.7% were minority students. TSGC has a primary focus on increasing the number of females and minorities in its programs and increase quantity and quality of female and underrepresented minorities in our programs.

TSGC Goal B: Fellowship and Scholarships and Longitudinal Tracking: In 2011-2012, we were able to track 100% of the students who were awarded scholarships and fellowships during the previous year. On average, we are able to track more that 95% of awardees each year.

TSGC Goal C: Workforce Development and Higher Education: Our ongoing Design Challenge matches design problems specified by NASA JSC engineering personnel with capstone engineering design classes at our affiliates. During 2011-2012, twenty design teams and about 100 JSC mentors, topic providers, judges and NASA Showcase participants were involved in this program.

TSGC Goal D: Research Infrastructure: New Investigators Program (TSGC NIP). We competitively award research initiation grants to assist new faculty members / researchers at our affiliates in the initiation of research aligned with NASA's strategic plan. We awarded one \$10K grant in 2011-2012.

NASA Outcome 2

Attract and retain students and teachers in STEM disciplines (Educate and Engage)

TSGC Goal E: Precollege and K-12: Our efforts in this area focus primarily on Texas educators, and through them, their students. Our strategy focuses on enhancing K-12 educator knowledge in STEM disciplines and increase underrepresented and underserved participation. We continue to offer the LiftOff summer program for teachers in conjunction with NASA JSC. In addition, we have partnered with the Rio Grande Valley Science Association by providing 75% of the primary staffing for their Summer of Innovation program initiated in the Summer of 2011.

NASA Outcome 3

Build strategic partnerships and linkages between STEM formal and informal education providers (Engage and Inspire)

TSGC Goal F: General public, informal education and public awareness: In this area, we leverage our contributions by adding speakers and resources to existing STEM education programs offered by other organizations.

TSGC Goal G: Internal management: We continue to focus on management efficiency and effectiveness in all of our activities. We are currently updating our strategic plan to assure clear alignment with NASA strategic goals. As an example of increased management efficiency, we are testing the use of electronic meeting software to hold a series of virtual meetings with institutional representatives, saving time and funds while accomplishing the necessary consortium communications functions.

PROGRAM/PROJECT BENEFIT TO OUTCOME (1, 2, OR 3)

NASA Outcome 1

Contribute to the development of the STEM workforce (Employ and Educate)

To demonstrate the impact of the Fellowship and Scholarship programs, we provide quotes from 2011 participants.

“TSGC has encouraged me to pursue my dreams of working in the field of human space flight. By supporting me through the Columbia Crew Memorial Scholarship and keeping me informed of educational opportunities, TSGC has helped me to not only further my own career but also to give back to the next generation by encouraging STEM education through programs such as Texas Aerospace Scholars”. (Peter Schulte – 2011 Columbia Crew Memorial Scholarship, University of Texas at Austin)

“As a graduate student, the support of TSGC has allowed me the financial freedom to pursue my growing interest in space. With their support I have had the opportunity to work at NASA and perform Mars analogue research; which would not have been possible without the TSGC scholarship that I received.

These wonderful opportunities have increased my desire to remain in Texas and work for NASA in the future.” (Karon Wynne – 2011 Columbia Crew Memorial Scholarship – University of Texas Medical Branch)

NASA Outcome 2

Attract and retain students and teachers in STEM disciplines (Educate and Engage)

TSGC's flagship Higher Education program is the Design Challenge. The day-long Design Showcase has become a regular "highlight" for JSC/USRA Career Exploration Program students each semester. Below are highlighted quotes from 2011 student participants.

“Great opportunity that helped prepare me for a career in engineering” (Austin Prince, 2010 Design Challenge Scholarship-Rice University)

“I will be participating in a NASA internship this summer (2011). Next fall I will begin graduate studies in Mechanical Engineering, which will be tangentially or directly related to the Aerospace industry.”(Michael Gouge, 2010-2011 Design Challenge participant-UT San Antonio)

NASA Outcome 3

Build strategic partnerships and linkages between STEM formal and informal education providers (Engage and Inspire)

Our flagship K-12 program, the LiftOff Summer Institute continues to impact teachers all over the state and Nation. One example of a successful measurable outcome: A Tennessee teacher, Tammy Sheppard, who teaches science at Winfree Bryant Middle School ,attended the LiftOff Program where she learned about the TSGC funded reduced gravity teacher micro-gravity flight opportunity. She participated in that program and most recently, has applied to become a NASA astronaut.

PROGRAM ACCOMPLISHMENTS TO OUTCOME 1, 2, 3

Outcome 1 - NASA Outcome 1

Contribute to the development of the STEM workforce (Employ and Educate)

TSGC Goal B - Fellowship and Scholarships and Longitudinal Tracking: TSGC annually awards 20 to 25 \$5000 graduate fellowships as supplements to local funding. We award no more than three fellowships to students at any one TSGC affiliate in a given year. A three person committee (two members from MSIs) selects the recipients each year. In 2011, we received 138 online applications and awarded 22 Fellowships (4 females, 18 males) (5 minorities, 1 Asian, 1 other and 15 Caucasian).

Columbia Crew Memorial Scholarships: A total of 327 students applied for the scholarships online. We awarded 22 scholarships at \$1000 each. (10 female, 11 male) (4 minorities, 14 Caucasian, 2 other, 1 Pacific Islander, 1 Asian) In addition, we funded one academy student and awarded smaller design scholarship stipends to outstanding students in our Design Challenge program. Overall, we awarded \$150,000 in Fellowship and Scholarship funds to 59 directly-funded students.

Fellowship and Scholarships and Longitudinal Tracking: Tracking is done for students funded in previous years. We successfully tracked 62 funded students (100%) from 2010-2011. Since 2006, our tracking data indicate that 86% of funded students have taken their next career or educational steps, remaining in STEM disciplines. For the 62 students tracked from last year,

- 9 are pursuing advanced degrees in STEM disciplines
- 3 accepted STEM positions at NASA contractors
- 25 accepted STEM positions in industry
- 2 accepted STEM positions in K-12 academia
- 8 accepted STEM positions in academia
- 15 went on to positions in non-STEM disciplines

TSGC Goal C- Workforce Development and Higher Education: Our Design Challenge matches undergraduate student design teams from TSGC affiliates with NASA mentors and real-world space-related design projects. Since 2002, the program has supported NASA mission-related research activities through student design projects. In addition to student designs, the program has resulted in the development of interdisciplinary space-related courses at both introductory and advanced levels. During FY 2011-2012, 20 teams at 12 TSGC affiliates participated and four affiliate institutions developed courses that directly incorporated the Design Challenge into their degree plans. During FY 2010-2011, 75 students participated in the Design Challenge (5 female, 70 male) (5 minorities, 68 Caucasian, 2 other).

Higher Education Proposal Opportunities: We competitively award new higher education projects to faculty and staff members at our affiliates at a \$15K level matched with \$15K from their home institutions. In 2011-2012, we awarded one new project (U of Houston - Clear Lake, “*Establishing Research, Training and Outreach in Nanosystems at UH -Clear Lake*”) (MSI affiliate, 1 Female).

TSGC Goal D - Research / New Investigator Program: TSGC provides research start-up funding of \$10K, matched by the recipient’s home institution, to two to five new faculty each year. These funds are awarded competitively to young investigators starting space-related research programs. In 2011-12, two new Research grants were awarded. Texas A&M University “*Design of High Temperature, High Toughness Ceramics for Hypersonic Flight Engines*” (1 Female, Caucasian), University of Houston Downtown – “*Planetary-mimic Chemical Analysis oriented Sensor Fabrication and Study, and Their integration with mentoring.*” (MSI affiliate, 1 Male, Asian)

NASA Outcome 2

Attract and Retain students and teachers in STEM disciplines (Educate and Engage)

TSGC Goal E - K-12 Education Program: TSGC’s K-12 program focuses on teacher education to use the leverage of excited teachers to help fill the STEM pipeline. Since 1990, TSGC has conducted an annual weeklong summer teacher workshop, *LiftOff*, at NASA JSC. *LiftOff* emphasizes STEM learning experiences by incorporating a space science theme supported by NASA missions. Teacher participants are provided with information, materials, and

experiences through hands-on activities and field trips. Flagship Liftoff Program: The theme for LiftOff 2011 was “*Earth’s Reflections: A View from Above*”. 44 teachers attended the weeklong workshop. Of the total, 34 were female and 10 male, (8 minorities: 7 Hispanic, 1 African American and 36 Caucasian). The teacher features (sharing of lesson plans among educator participants) and opportunities to interact with scientists and engineers dedicated to space missions are highlights for the educators attending. *LiftOff* Alumni Teachers conduct space-related training sessions across Texas which reach approximately 2,000 teachers annually.

TSGC Goal E - K-12 Education Grants: TSGC provides K-12 Education grants matched by the recipient’s home institution, to two to five affiliate faculty each year. These funds are awarded competitively. In 2011-2012, we awarded 2 K-12 projects at \$15K each. (University of Texas at Austin “In Space... You Can See Forever” (1 Female, Caucasian); University of Texas El Paso, “*STEM outreach and Education advancement through Science Engineering Math Aerospace Academy (SEMAA), U of Texas El Paso and Center for Space Exploration*” (MSI affiliate, 1 Male, Caucasian)

TSGC Goal E – Teacher Professional Development- Summer of Innovation:

In spring of 2011, the Rio Grande Valley Science Association was awarded one of the national NASA Summer of Innovation grants. TSGC partnered with RGVSA in a very successful program that brought almost 150 teachers from the Rio Grande Valley together for a five day workshop. TSGC provided instructors for three of the four tracks available to the teachers. Each participating teacher then conducted a workshop for 25 middle school students (predominantly Hispanic) during summer 2011. This level of TSGC is continuing with two three-day training sessions for teachers scheduled for summer 2012.

TSGC Goal E - Teacher professional Development short term activities:

As a result of TSGC’s history of activities in STEM education, we are often contacted to conduct STEM activities for teachers. During the 2011-2012 grant year, we conducted workshops at the Regional and National Science Teacher Association (NSTA) meetings for approximately 120 teachers. In addition, we assisted a NASA booth at the NSTA meeting, distributing educational materials. Other short term teacher development activities include a 3-hour short course the Conference for the Advancement of Science Teachers (30 participants), two one hour workshops for 60 educators, the Space Exploration Educator Conference (30 participants), Rio Grande Valley Mini-Cast (25 participants), P-12 STEM Colloquium (12 participants), and the Texas Regional Collaborative for Science and Math (24 participants).

NASA Outcome 3

Build strategic partnerships and linkages between STEM formal and informal education providers (Engage and Inspire)

TSGC Goal F – Informal Education: Our goal in this area is to promote STEM education, increase public awareness of STEM initiatives and demonstrate program successes. We continue to collect “Success Stories” to highlight the activities and accomplishments of students and teachers that have participated in our programs. We have collected over 100 success stories to date. We maintain an extensive website (www.tsgc.utexas.edu) and a TSGC fan Facebook page

([http://www.facebook.com/pages/NASA-Texas-Space Grant/286095539201?v=wall](http://www.facebook.com/pages/NASA-Texas-Space%20Grant/286095539201?v=wall)) with over 700 fans to date. TSGC continues to host the “*Ask-A-Scientist*” link on the consortium website which answers space-related questions provided by teachers, students, and the general public. Questions come in daily. We provide interesting and engaging interactive educational space related experiences through the TSGC website and newsletter “*Voyage to Spread Space Excitement*” reaching over 2,000 monthly.

Student outreach STEM initiatives: TSGC collaborated with The University of Texas Center for Space Research to sponsor the NASA ROSES Summer Internship program for high school students. This competitive program offered 14 high school students the opportunity to work beside scientists and engineers in a university setting on four NASA satellite missions. The program involved climate education and analysis of satellite data. The students also conducted space science hands-on activities led by TSGC staff and *LiftOff* alumni teachers.

TSGC personnel participated in several elementary and high school programs both short term and long term in 2011. Below we list the name of the activity followed by the number of students impacted. A number without a word following it indicates students only. A number followed by “participants” indicates a mix of students, teachers, and parents; McNeil High School STEM Academy (40); Boy Scout Jamboree (60); Chisholm Trail Middle School (30); Bridgepoint Elementary Science Day Workshops (84); Brushy Creek Elementary Science Fair (30). Fern Bluff Elementary (350 participants), Deer Creek Elementary Family Science Night (400 participants) SystemsGo Preflight (150 participants), Earth Science Week Career Fair (250), Eanes Elementary (88), Expanding Your Horizons; Women in Astronomy (60 participants); *LiftOff* Teacher Student programs (5280 – the average of 120 per LiftOff teacher is derived from follow-up questionnaires filled out by the teachers); Engaging Teachers and Students in Astronomy Edinburg TX (2,200 participants). In total, these activities reached more than 9000 students, teachers, and parents.

TSGC partners and collaborates with numerous organizations each year. In these collaborations, we have trained informal educators, distributed materials to the general public, and conducted standards-based educational activities for students, parents, and the general public. In 2011-2012, TSGC hosted and participated in the following informal education activities: Environmental Institute Lecture Series (100), Austin Nature and Science Center (500 participants), Space Night with Austin Science and Nature Center (50), Earth Science Week Career Fair (350 middle school students), Texas Agri-life Extension Service (35 informal educators), AmeriCorp (25 teachers), Extend-a-care (35 teachers), and World Space Day (300). These activities reached more than 1300 individuals.

Outcome 3 – TSGC Goal G - Management and Infrastructure: We continue to seek ways to manage program activities more efficiently. We review our strategic plan annually, seek external support, require matching from recipient institutions on most of our programs, and augment activities initiated by other groups whenever possible.

PROGRAM CONTRIBUTIONS TO NASA EDUCATION PERFORMANCE MEASURES

Student data and Longitudinal Tracking : Total awards = 119; Fellowship/Scholarship = 44, Higher Education/Research Infrastructure = 75; 11.8% of the total award represent underrepresented minority F/S funding. During the FY11 program year 9 are pursuing advanced degrees in STEM disciplines, 3 accepted STEM positions at NASA contractors, 25 accepted STEM positions in industry, 2 accepted STEM positions in K-12 academia, 8 accepted STEM positions in academia, and 15 went on to positions in non-STEM disciplines. The remaining students have not yet received the degree that they were pursuing while the received their Space Grant award.

Diversity: During the past year TSGC has continued to engage diverse audiences through student programs, teacher professional development, and with institutions who serve diverse populations. In our Fellowship/Scholarship, Higher Education and Research infrastructure categories, we had 173 direct participants. 31.7% were female, and 23.7% were minority students. Additional diversity data reported on page 10. We are aware that we are having problems with our diversity targets. A major problem has been getting sufficient numbers of minority and female applicants for our programs. In an effort to increase these numbers, we created an “MSI only” funding opportunity focused on increased minority student involvement. This funding was awarded to Prairie View A&M in late 2011. In addition, we modified our scholarship program by increasing the funding level from \$ 1000 to \$ 1500 and instituted a STEM scholarship to encourage a wider range of students to apply for the scholarships. With our augmentation funds, we have awarded 27 additional scholarships at the \$ 1500 level. Of these awardees, 12 are female and 14 are minorities.

In addition to the above, we have funded five El Paso Community College Campuses and Johnson middle school in Houston to participate in the SSEP program out of our augmentation. These schools have predominantly minority enrollments and should greatly increase our minority participation percentages.

Minority Serving Institution Collaborations: The Education and Outreach staff of TSGC supported programs and proposals by affiliates, institutions, and partners that serve underrepresented and underserved populations. Minority Serving Institution involvement in our programs and proposals has been extensive. In our Fellowship / Scholarship reviews, two of the three members of the standing review committee are from MSIs (University of Texas El Paso and Texas A & M Kingsville). The other committee member is from Texas Tech. The committees that reviewed our proposals (New Investigator Program, Higher Education Program, and K-12 / Outreach Program) had eleven reviewers. Six of the reviewers were from MSIs (Prairie View A&M, Sul Ross, Angelo State, U of Houston Downtown, San Jacinto College, and U of Houston Clear Lake). Fifteen Institutions submitted twenty one proposals for these programs. There were four proposals from MSIs (U of H Downtown (2), UT El Paso, and U of Houston – Clear Lake). Awards were made to five of the twenty one proposed projects. Of these five awards, three were made to projects at MSIs – one each to U of H Downtown, UT El Paso, and U of Houston – Clear Lake.

In addition to the above projects, we have an ongoing \$ 50K two-year MSI focused project at Prairie View A&M “Space Exploration Software Simulation Curriculum and Student Training” that spans the period from September 2011 to August 2013. Also, the U of Texas Pan American and the U of Texas at Austin are intimately involved with the Summer of Innovation Program managed by the Rio Grande Valley Science Association (RGVSA).

We partner with Citizens Schools, a nationwide organization that partner with middle schools to expand the learning day for children in low-economic communities. Our collaboration with the Rio Grande Valley Science Association (RGVSA) provided NASA resources to young Hispanic girls and “Girls in Science” camp co-sponsored by TSGC and RGVSA and has expanded programs for teachers, students and collaborations in the underserved area of Texas along the Mexico border. Programs with The Texas School for the Blind and Visually Impaired offered NASA materials to students, staff, and teachers who serve this underrepresented audience.

NASA Education Priorities

In this section, we state a NASA Education Priority in italics followed by a brief description of how we focus on that priority in our programs.

Authentic, hands-on student experiences in science and engineering disciplines – the incorporation of active participation by students in hands-on learning or practice with experiences rooted in NASA-related, STEM-focused questions and issues; the incorporation of real-life problem-solving and needs as the context for activities.

- Texas Space Grant Design Challenge Program - matches undergraduate student design teams from TSGC member institutions with real-world space related design projects provided by the NASA community.
- TSGC supports two to three smaller higher education projects each year and provides supplemental funding for student teams flying experiments on NASA’s microgravity aircraft and supports student rocketry organizations.
- TSGC provides student support NASA Internships and NASA Academies.

Engage middle school teachers in hands-on curriculum enhancement capabilities through exposure to NASA scientific and technical expertise. Capabilities for teachers to provide authentic, hands-on middle school student experiences in science and engineering disciplines.

- Each summer, TSGC conducts a weeklong summer teacher workshop, *LiftOff*, at NASA JSC. *LiftOff* emphasizes STEM learning experiences by incorporating a space science theme supported by NASA missions for middle school teachers.
- TSGC provides \$15K K-12 Education grants, matched by the recipient’s home institution.
- TSGC supports the Student Spaceflight Experiment Program (SSEP) This program immerses students within a local community in an exciting, high profile science competition in which spaceflight experiments are designed and owned by the students. The program generates excitement by wrapping powerful, community-wide science education programming around the experience. Team experiments, designed

by middle school and high school classes, will be flown to the International Space Station. El Paso Community College, a team from Presidio, Tx, and a high school team from Houston are currently developing experiments with partial TSGC support.

- Teacher professional development short term activities were described earlier in this report

Summer opportunities for secondary students on college campuses with the objective of increased enrollment in STEM disciplines or interest in STEM careers.

- Annual participation in the Science and Engineering Festival which is a publically offered weekend of STEM booths, hands-on activities and educational programs.
- NASA ROSES Summer Internship Program - This competitive program offered 14 high school students the opportunity to work beside scientists and engineers in a university setting on four NASA climate education and analysis satellite missions while also conducting space science hands-on activities led by TSGC staff and LiftOff alumni teachers.
- Elementary and high school programs both short term and long term which are highlighted on page 6.

Community Colleges – develop new relationships as well as sustain and strengthen existing institutional relationships with community colleges.

- 5 out of our 50 member affiliates are community colleges.
- We are working with 5 El Paso Community College campuses in our SSEP flight program.

Environmental Science and Global Climate Change – research and activities to better understand Earth's environments.

- Annual participation in Earth Science Week career fair.
- Global Climate Change Education grant in 2011
- Development of undergraduate course on Climate Change and the University of Texas San Antonio

Diversity of institutions, faculty, and student participants.

- Minority and Underserved Participation enhancement: TSGC has 50 affiliates, 39 of which are academic institutions. Of these 39 academic institutions, 18 are MSIs and 5 are community colleges. We work with our Minority Serving Institutions Activities Council (MSIAC) to engage more underserved communities into our programs.
- We partner annually with Citizens Schools and the Texas School for the Blind and Visually Impaired, providing instruction and educational activities as requested.

Enhance the capacity of institutions to support innovative research infrastructure activities to enable early career faculty to focus their research toward NASA priorities.

- Through our competitive New Investigator Program, we provide research start-up funding of \$10K, matched by the recipient's home institution, to one to five new faculty each year. During 2011-12, we provided two such grants.

IMPROVEMENTS MADE IN THE PAST YEAR

Design Challenge Program: During the past year, four degree programs at consortium affiliates have formally integrated Design Challenge content into courses. Another new development is that high school students are now attending the Design Showcase as part of a program to encourage them toward increased STEM involvement. Two Design Challenge students were identified for and recruited into ESMD internships during the past year. The Design Showcase partnered with the Art Director of the Humans in Space Symposium, Dr. Jancy McPhee, in an exhibit of space-related art by winners of the International Youth Art Competition. Samples included visual art, literature, poetry and musical compositions submitted by youth from all over the world.

The Education and Outreach staff of TSGC supported programs and proposals by affiliates, institutions, and partners that serve underrepresented and underserved populations. Our collaboration with the Rio Grande Valley Science Association (RGVSA) provided NASA resources to 20 young Hispanic girls and 4 Hispanic chaperones during a trip to the Glenn Research Center for the Minority Student Form. Students were selected from Hispanic girls who participated in the "Girls in Science" camp co-sponsored by TSGC and RGVSA. Through the "Engaging Teachers and Students in Astronomy and Earth and Space Science", a STEM education grant received from NASA in partnership with RGVSA and The University of Texas Pan American, we provided Astronomy resources to 41 teachers during weeklong summer workshops. 80% of the teacher participants were minority and they teach 90% Hispanic students. The weeklong workshops were followed with two Science Saturday workshops for 49 teachers who reported using materials with over 800 underrepresented and underserved students. In the 2011 Summer of Innovation program in the Rio Grande Valley, 150 teachers received 40 hours of professional development and 1,650 students participated in NASA summer camps. TSGC was responsible for selecting NASA materials and provided three of the four professional trainers for the week-long teacher training in preparation for the summer camps.

One of the TSGC affiliates, The University of Texas San Antonio (UTSA) was awarded the Global Climate Change Education Grant in 2011. As a result of the Innovations in Global Climate Change Education Symposium hosted by Texas Space Grant Consortium, UTSA has developed a new undergraduate course on Climate Change and the students are producing videos and training for area teachers. Fourteen High School students were selected for summer internships at The University of Texas Center for Space Research. TSGC Outreach staff and *LiftOff* alumni teachers supervised these students as they analyzed satellite data on Global Climate Change issues and interpreted results. In addition, TSGC professional staff led a 6-week after-school enrichment program for middle school students at Round Rock Middle School that focused on engineering and environmental issues. We conducted activities to over 300 people

on the water cycle and climate change during the World Space Day event sponsored by The University of Texas at Brownsville.

We added 3 new affiliate members to Texas Space Grant in 2011, GirlStart (a non-profit organization focusing on STEM activities for girls), McLennan Community College (Waco, Tx) and the Texas Medical Center (a consortium of medical organizations). At the suggestion of our MSIs, we have launched a Mini-STEM Grant Outreach Program to support student group outreach activities.

PROGRAM PARTNERS AND ROLE OF PARTNERS IN PROJECT EXECUTION

TSGC is structured to provide strong management input and oversight by representatives of its affiliate institutions. Affiliate representatives play a vital role in defining Consortium operations, goals, and funding distribution and are provided with many avenues for participation in consortium management and programs. They can stand for election to the Board of Directors (BOD), be a member of a consortium committee, advertise and encourage students to apply for our scholarships, fellowships, and NASA internships, distribute information about funding opportunities, review scholarship / fellowship applications, review proposals, assist in tracking program participants, and help to recruit and keep students involved in STEM activities.

Below we list all TSGC affiliate members (MSIs are indicated by boldface type).

Four Year University Affiliates - 34

Angelo State University, Baylor University, Lamar University, **Prairie View A&M University**, Rice University, Southern Methodist University, **Sul Ross State University**, Tarleton State University, Texas A&M University, Texas A&M University Commerce, **Texas A&M University Corpus Christi**, **Texas A&M International University**, **Texas A&M University Kingsville**, Texas Christian University, **Texas Southern University**, **Texas State University – San Marcos**, Texas Tech University, Trinity University, University of Dallas, University of Houston, **University of Houston Downtown**, **University of Houston Clear Lake**, University of North Texas, **University of Texas Pan American**, University of Texas at Arlington, University of Texas at Austin, University of Texas at Dallas, **University of Texas El Paso**, UT Health Science Center Houston, **UT Health Science Center San Antonio**, UT Medical Branch Galveston, **University of Texas San Antonio**, UT Southwestern Medical Center, University of Texas at Tyler

Community College Affiliates - 5

San Jacinto College, **Houston Community College**, **Austin Community College**, **El Paso Community College**, McLennan Community College

Industry / State / Non-profit Affiliates - 11

Austin Planetarium, Bob Bullock State History Museum, Don Harrington Discovery Center, Lockheed Martin, Office of the Governor, Southwest Research Institute, TX Higher Education Coordinating Board, United Space Alliance, University Space Research Association, Girlstart, Texas Medical Center

PARTNERSHIPS AND COLLABORATIONS

NASA JOHNSON SPACE CENTER provides design project topics, one-on-one mentors for the design teams, Design Showcase support, judges for the design competition, stationary and staffed exhibits, and professionals to hear student design presentations.

The NASA JSC CAREER EXPLORATION PROGRAM brings high school students from area minority campuses to attend the Design Challenge Showcase. The goal is to show high school students "what college has to offer" by viewing and interacting with talented and enthusiastic university / Design Challenge participants.

NASA ESMD provides internship funding opportunities for Design Challenge Students

NASA JSC Education Office / Internship Office aids with placement of Design Challenge students into internships that aligned well with areas of interest or academic emphasis.

The IAA (International Academy of Astronautics) HUMANS IN SPACE SYMPOSIUM provided a large exhibit of space-related art. The exhibit was hosted and displayed by the Art Director of the IAA Humans in Space Symposium at the Design Challenge Showcase Spring 2011.

Presidio ISD and Houston ISD are school districts participating in the Student Spaceflight Experiment Program (SSEP) with partial TSGC support.

Other new partnerships and collaborations in 2011-2012 include local schools surrounding the greater Austin area including Fern Bluff Elementary, Round Rock Middle School, Austin Girls School, and the STEM Center for Excellence where we conducted teacher and student workshops. We partnered with 6 school districts in the Rio Grande Valley which include Valley View, Pharr-San Juan-Alamo, Edinburg, Harlingen, McAllen, and Brownsville to provide NASA resources, teacher professional development, and support for student camps during the Summer of Innovation program.